



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,008	02/18/2004	Katsunobu Sumimura	KGMEP016	5426
22434	7590	09/02/2008	EXAMINER	
BEYER WEAVER LLP P.O. BOX 70250 OAKLAND, CA 94612-0250			LEFF, STEVEN N	
			ART UNIT	PAPER NUMBER
			1794	
			MAIL DATE	DELIVERY MODE
			09/02/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/19/07 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
- Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bengtsson et al. (3734751) in view of Hekai (4857343).

Bengtsson et al teach the preparation of “leaf vegetables such as spinach” (abstract) Bengtsson et al specifically teach the method of first “increasing the dry matter content of the comminuted vegetables by partial dewatering, for example by pressing or centrifugation, to a dry matter content of about 9-15% by weight.” (pg. 1 col. 1 lines 62+) “Centrifugation, using a desludging centrifuge, is preferred, and this operation yields two streams.” (pg. 1 col. 1 line 64+) “The first is the product, containing 9-15% by weight of dry matter, and a clear effluent containing less than about 3% solids.” (pg. 1

Art Unit: 1794

col. 1 lines 66+) Bengtsson et al further teach that the effluent “may be purified, for example by treatment with... electro dialysis.” (pg. 1 col. 2 line 2+) “The purification step removes from the effluent certain undesirable anions, such as nitrite...” (pg. 1 col. 2 line 5+). More specifically it is noted that Bengtsson et al. teach, with respect to example 1, an effluent stream concentrated to 40% solids which is combined 50/50 with the product stream at 11.5% solids to yield a total solids content of about 26%.

Bengtsson et al. teaches using a desludging centrifuge in order to obtain a dry matter content of less than 3%. Although Bengtsson et al does not refer to the dry matter content as “sludge volume” Bengtsson et al. does teach the use of centrifugation for its art recognized and applicants intended purpose of reducing the dry matter content. Sludge volume is defined as the amount of dry matter in a given amount of fluid. Therefore Bengtsson et al. teaches the limitation according to claim 1.

However Bengtsson et al. is silent with respect to a specific Brix value for the concentrated juice and the removal of specifically nitrate. Bengtsson et al. is further silent with respect to the specific speed with which the juice flows over the membrane surface during electro dialysis and a temperature of 10C or lower.

With respect to Bengtsson et al. being silent with respect to specifically the removal of nitrate, Bengtsson et al. does teach the removal from the effluent certain undesirable anions, such as nitrite...” (pg. 1 col. 2 line 5+) and thus removing nitrates flows logically since nitrates and nitrites are both present in kelp, and spinach. Therefore it would have been obvious to remove nitrate since Bengtsson et al. teach the removal of undesirable anions, including nitrite by electro dialysis from specifically spinach and kelp juice, thereby optimizing the treating method and providing a purified juice as is desired by Bengtsson et al. since all “undesirable anions” have been removed.

Brix is a measurement that is dependant upon the amount of solids in a given weight of plant juice. Expressed another way Brix is a summation of pounds of sucrose, fructose, vitamins and other solids in one hundred pounds of any particular plant juice. The amount of water that is present as well as the amount of solids that are present is dependant upon the type of plant. Further the Brix value can be altered to any degree by the addition or subtraction of water. Therefore with regard to Bengtsson et al., although Bengtsson et al. does not specifically recite a specific Brix value for the concentrated

Art Unit: 1794

juice, Bengtsson et al. does teach "partially dewatering", and further teaches a dry matter content of 9-15% resulting in an effluent (vegetable juice) with a dry matter content of less than 3%.

Thus it would have been obvious to one of ordinary skill in the art to adjust the Brix value by adjusting the amount of water with respect to the solid (sugar) content. This value would further be dependent upon the type of vegetable being used due to the differences in sugar content between different vegetables. Consequently, one of ordinary skill in the art would have been motivated to adjust the Brix value in order to obtain an end product that is desirable in taste, color, etc. with respect to the specific vegetable being used. Therefore the referenced value and method meet those of the instant claims, and it would be expected that the vegetable juice would attain a Brix values in the ranges listed in the instant claims, absent any clear and convincing evidence and/or arguments to the contrary.

In addition, the length of time which centrifugation takes place during "dewatering" would proportionally affect the Brix value due to the amount of water that would be present in the effluent (vegetable juice). The Brix value, with respect to Bengtsson et al. would be dependant upon the extent of which "dewatering" is to take place. The effluent (vegetable juice) could have a range of possible Brix values that could be controlled by the amount of "dewatering". The office action has set forth a proper obviousness rejection, and thus the burden shifts to applicant to demonstrate otherwise. Thus the claimed invention would have been obvious to one of ordinary skill in the art at the time of the invention by the applicant, absent any clear and convincing evidence and/or arguments to the contrary.

With respect to the specific speed with which the juice flows over the membrane surface during electro dialysis of .5-10 cm/sec and a temperature of 10C or lower.

Hekai teaches the "treatment of liquid comestibles such as fruit and vegetable juices." (col. 1 line 6+) The "liquid comestibles are electrolytically treated... at temperatures lower than those normally used..." (abstract) The particular temperature range that Hekai teaches is 160 degrees Fahrenheit or less (col.3 line 36+). Hekai further teaches, "in the line to the inlet there normally is a proportioning means such as a valve or pump, not shown, for controlling the flow rate of the fruit juice. (col. 4 line 57+)

Art Unit: 1794

Therefore, one of ordinary skill in the art would have been motivated to combine the teachings of Bengtsson et al and Hekai to produce a vegetable juice with a flowing speed of .5-10cm/sec at a temperature of 10C or lower, since although Bengtsson et al does not teach a specific speed with which the juice flows over the membrane surface during electro dialysis, Bengtsson et al does teach the use of vegetable juice, specifically spinach juice, and the method of removing nitrites and other undesirable anion (col. 2 lines 5-6) from concentrated juice through the use of electro dialysis. Hekai teaches the idea of controlling the flow rate of the juice during electro dialysis. The flow rate with which the vegetable juice passes over the membranes during electro dialysis can be, and is needed to be, directly controlled in order to attain the desired vegetable juice. For instance, different factors such as, vegetable juice with different Brix values, and the temperature of the juice would affect the viscosity as well as the specific type of vegetable juice being used. All of these factors must be taken into account when adjusting the flow rate of the juice with respect to the membrane, thus necessitating a valve for controlling the flow rate. Therefore it would have been obvious to combine a range of Brix values, and/or a list of vegetables with a range of operating speeds for the vegetable juice in order to optimize the treatment conditions with respect to a specific material to be treated.

With respect to the specific temperature of 10C or lower, Hekai teaches in example 1 the use of a “chilled (42 F) single strength orange juice”. Although example 1 specifically recites the use of orange juice, Hekai teaches the overall method with respect to “fruit and vegetable juices” (col. 1 line 6+). Consequently, it would have been obvious to one of ordinary skill in the art to substitute a vegetable juice such as spinach, celery or kale juice, as taught by Bengtsson et al., for the orange juice as is stated by Hekai in example one. Hekai therefore teaches the method of producing a vegetable juice using electro dialysis, where the juice is chilled to a temperature of less than 10C and the juice flows into the chamber at a flow rate of .5-10cm/sec. The only difference between the prior art of Bengtsson et al and that of the claimed method was a recitation of temperature and speed of the juice flowing over the membrane; however Hekai positively teaches these specifics with regards to producing vegetable juice. The method of producing a vegetable juice, of the instant claims, would not be expected to perform differently than

Art Unit: 1794

the prior art method; therefore the claimed method is not patentably distinct from the prior art method.

Response to Arguments

With respect to applicant's assertion that it would take an unreasonably demanding effort to discover such narrowly defined conditions, since the only difference between the prior art and the claims was a recitation of specific treating parameters with respect to specific treating material, one of ordinary skill in the art would not expect the method of the instant claims to perform differently than the prior art method, thus the claimed method is not patentably distinct from the prior art method (See MPEP 2144.04 IV A). "Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation," (see MPEP 2144.05 IIA), as the normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages" (see MPEP 2144.05 IIA) to achieve the desired amount of nitrate nitrogen removal with regard to a specific product under specific conditions.

Therefore it would have been obvious since all the claimed elements were known in the prior art and one skilled in the art could have substituted the elements with no change in their respective functions, thus yielding predictable results to one of ordinary skill in the art at the time of the invention where combining the two methods, each of which is taught by the prior art to be useful for the same purpose, flows logically from their having been individually taught in the prior art (see MPEP 2144.06), and since MPEP 2144.07 states that the selection of a known process based on its suitability for its intended use supports a prima facie obviousness determination.

Applicant's remarks have been considered but are not deemed persuasive over the prior art, where the rejections are maintained for the reasons of record. Thus although neither Bergtsson nor Hekai teach specific values with regard to the brix, and flow rate, and it is noted that the flow rate with which the vegetable juice passes over the membranes during electro dialysis can be, and is needed to be, directly controlled in order to attain the desired vegetable juice. For instance, different factors such as, vegetable juice with different Brix values, and the temperature of the juice would affect the viscosity as well as the specific type of vegetable juice being used. All of these factors must be taken into account when adjusting the flow rate of the juice with respect to the membrane.

Art Unit: 1794

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Leff whose telephone number is (571) 272-6527. The examiner can normally be reached on Mon-Fri 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached at (571) 272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Drew E Becker/

Primary Examiner, Art Unit 1794

/S. L./

Examiner, Art Unit 1794